

**NUOVA S.S. 341 "GALLARATESE" - TRATTO DA SAMARATE A CONFINE
CON LA PROVINCIA DI NOVARA - TRATTO NORD**

**STRALCIO FUNZIONALE DAL KM 6+500 (SVINCOLO S.S. 336 NORD)
AL KM 8+844 (SVINCOLO AUTOSTRADA A8)
"BRETELLA DI GALLARATE"**

PROGETTO ESECUTIVO

 <p>STUDIO CORONA</p>	 <p>Ingegneria del Territorio s.r.l.</p>	<p>ING. RENATO DEL PRETE</p>	 <p>ECOPLAN</p>	 <p>E&G Engineering & Graphics S.r.l.</p>
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<p>Ing. Renato Vaira (Ordine degli Ingg. di Torino e Provincia n° 4863 W)</p>	 <p>CONSORZIO UNING Soc. Cons. s.r.l.</p> <p>Società designata: GA&M</p>	<p>SETAC Srl Servizi & Engineering Trasporti Ambiente Costruzioni</p>	<p>ARKE' INGEGNERIA S.r.l. Via Impalpore, Trapani n° 4 - 70126 Bari</p>	<p>DOTT. GEOL. DANILLO GALLO</p>
	<p>Prof. Ing. Matteo Ranieri Ordine degli Ingg. di Bari e provincia n° 1137</p>	<p>Prof. Ing. Luigi Monterisi Ordine degli Ingg. di Bari e provincia n° 1771</p>	<p>Ing. Gioacchino Angarano Ordine degli Ingg. di Bari e provincia n° 5970</p>	<p>Dott. Geol. Danilo Gallo Ordine dei Geologi della Regione Puglia n° 588</p>

<p>VISTO: IL RESPONSABILE DEL PROCEDIMENTO</p>	<p>RESPONSABILE INTEGRAZIONE DELLE PRESTAZIONI SPECIALISTICHE</p>	<p>IL PROGETTISTA FIRMATARIO DELLA PRESTAZIONE</p>	<p>GEOLOGO</p>	<p>COORDINATORE DELLA SICUREZZA IN FASE DI PROGETTAZIONE</p>
<p>Dott. Ing. Giancarlo LUONGO</p>	 <p>Ing. Renato DEL PRETE</p>	 <p>Ing. Valerio BAJETTI</p>	 <p>Prof. Ing. Geol. Luigi MONTERISI</p>	 <p>Ing. Gaetano RANIERI</p>

MB02

M - IMPIANTI

MA - IMPIANTI SVINCOLO

RELAZIONE DI CALCOLO ILLIMUNOTECNICO

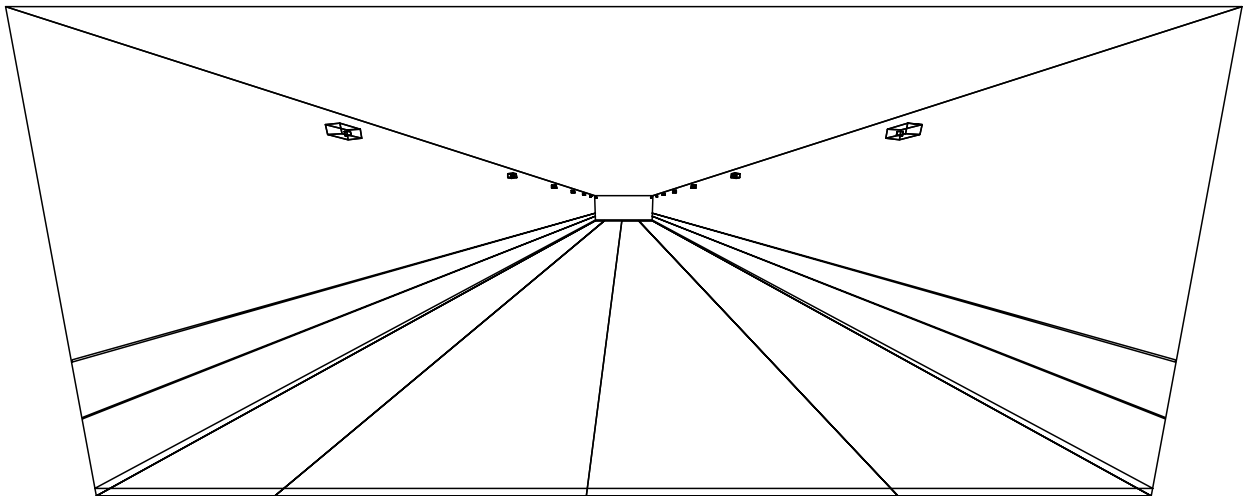
<p>CODICE PROGETTO</p> <p>PROGETTO LIV. PROG. N. PROG.</p> <p>MI533 E 1801</p>			<p>NOME FILE</p> <p>MB02-P00IM00IMPRES02_A.dwg</p>		<p>REVISIONE</p> <p>A</p>	<p>SCALA:</p> <p>-</p>
<p>CODICE ELAB.</p> <p>P00 IM00 IMPRE02</p>						

C					
B					
A	EMISSIONE	MAGGIO 2021	ING. VALERIO BAJETTI	ING. VALERIO BAJETTI	ING. RENATO DEL PRETE
REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO

GALLERIA 80 M. PERMANENTE

Note Installazione: ESTRUSO 100 W SAP ASIMMETRICO
Cliente: STUDIO MG
Codice Progetto: TU11094
Data: 06/04/2011

Note:
DUE FILE AFFACCIAATE
INT. 12 M.



NOME PROGETTISTA:
Indirizzo:
Tel.-Fax:

Avvertenze:

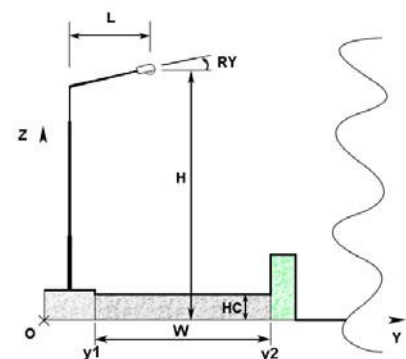
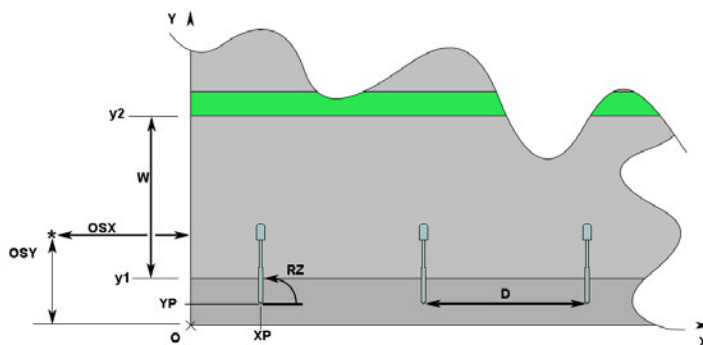
1.1 Informazioni Area

Dati Strada

Zona	Tipo Zona	Corsia	Senso di Marcia	Larghezza [m] W	y1 [m]	y2 [m]	Pt.Calc.Y (ILLUM.)	Pt.Calc.Y (LUMIN.)	h Zona [m] (HC)	Colore	Tabella R	Coeff.Rifl. Fattore q0
Marc_A	Ciclabile/Pedonale	Marc_A_C1	--->	3.05	0.00	3.05	3	3	0.00	RGB=219,54,36		40.00
Carregg_A	Carrabile			7.50	3.05	10.55	5		0.00	RGB=126,126,126	C2	7.01
		Carregg_A_C1	--->	3.75	3.05	6.80		3				
		Carregg_A_C2	--->	3.75	6.80	10.55		3				
Marc_B	Ciclabile/Pedonale	Marc_B_C1	--->	2.15	10.55	12.70	3	3	0.00	RGB=219,54,36		40.00

Dati di installazione (File di Apparecchi)

Nome Fila	1° Palo x [m] (XP)	1° Palo y [m] (YP)	Altez.App. [m] (H)	Num. Pali	Interd. [m] (D)	Sbraccio [m] (L)	Incl.App. ° (RY)	Rot.Sbraccio ° (RZ)	Incl.Laterale ° (RX)	Fatt.Manut. [%]	Codice Apparecchio	Flusso lm	Rifer.
Fila A	4.00	0.50	5.00	7	12.00	0.00	0	180	-5	80.00	ESTRUSO1-AHPST100W10500		A
Fila B	4.00	12.20	5.00	7	12.00	0.00	0	0	-5	80.00	ESTRUSO1-AHPST100W10500		A



1.2 Calcolo Energetico (Suolo)

Area	600.00 m ²
Illuminamento Medio	75.55 lx
Potenza Specifica	2.33 W/m ²
Potenza Specifica Illuminotecnica	3.09 W/(m ² * 100lx)
Efficienza Energetica	32.38 (m ² *lx)/W
Potenza Totale Utilizzata	1400.00 W

1.3 Parametri di Qualità dell'Impianto

Riepilogo Risultati

Zona	Osservatore	Corsia	Ti	UI	LAv	Uo
Carregg_A			Ti=0.56	0.61	3.20	0.71
	1) (x=-60.00 y=4.92)m	Carregg_A_C1		0.72	3.21	0.74
	2) (x=-60.00 y=8.68)m	Carregg_A_C2		0.61 *	3.20 *	0.71 *
	(x=-5.63 y=4.92)m		Ti=0.50			
	(x=-5.63 y=8.68)m		Ti=0.56 *			
Lv=0.03						

Norma:

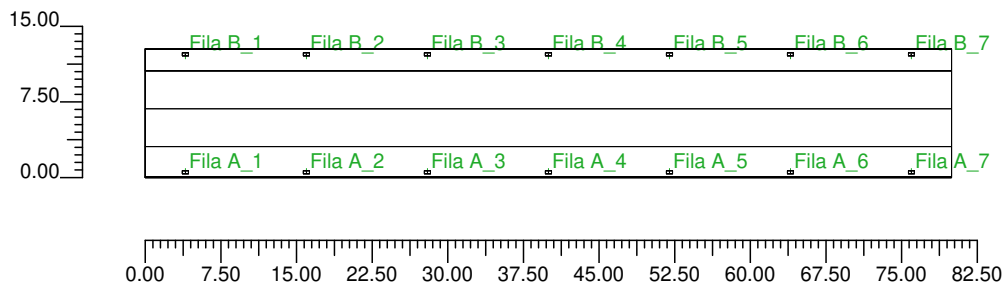
CEN 13201

Inquinamento Luminoso

Rapporto Medio - Rn -
0.02 %

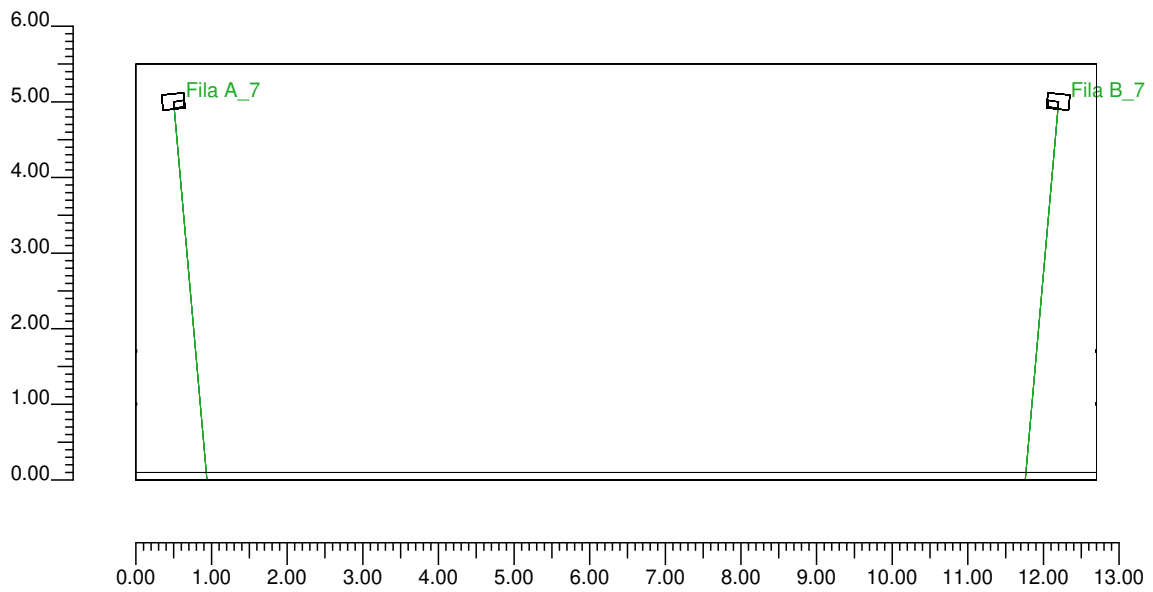
2.1 Vista 2D in Pianta

Scala 1/750



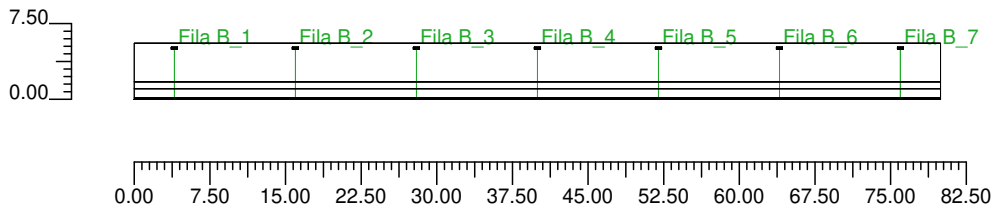
2.2 Vista Laterale

Scala 1/100



2.3 Vista Frontale

Scala 1/750



3.1 Informazioni Apparecchi/Rilievi

Rifer.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice Rilievo)	Apparecchi N.	Rif.Lamp.	Lampade N.
A	GRECHI Estruso	ESTRUSO1 ASIMM. 100W HPST/SAP (GG38 100W HPST/SAPT)	ESTRUSO1-AHPST100W (010100GG38HPST)	-	LMP-A	1

3.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	N.
LMP-A	ST 100	SONTPLUS100	10500	100	1950	-

3.3 Tabella Riepilogativa Apparecchi

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	4.00;0.50;5.00	0.0;-5.0;90.0	ESTRUSO1-AHPST100W	0.80	SONTPLUS100	1*10500
	2	X	16.00;0.50;5.00	0.0;-5.0;90.0				
	3	X	28.00;0.50;5.00	0.0;-5.0;90.0				
	4	X	40.00;0.50;5.00	0.0;-5.0;90.0				
	5	X	52.00;0.50;5.00	0.0;-5.0;90.0				
	6	X	64.00;0.50;5.00	0.0;-5.0;90.0				
	7	X	76.00;0.50;5.00	0.0;-5.0;90.0				
	8	X	4.00;12.20;5.00	0.0;-5.0;-90.0				
	9	X	16.00;12.20;5.00	0.0;-5.0;-90.0				
	10	X	28.00;12.20;5.00	0.0;-5.0;-90.0				
	11	X	40.00;12.20;5.00	0.0;-5.0;-90.0				
	12	X	52.00;12.20;5.00	0.0;-5.0;-90.0				
	13	X	64.00;12.20;5.00	0.0;-5.0;-90.0				
	14	X	76.00;12.20;5.00	0.0;-5.0;-90.0				

3.4 Tabella Riepilogativa Puntamenti

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila A_1	X	4.00;0.50;5.00	0.0;-5.0;90.0	4.00;0.94;0.00	0	0.80	A
			Fila A_2	X	16.00;0.50;5.00	0.0;-5.0;90.0	16.00;0.94;0.00	0	0.80	A
			Fila A_3	X	28.00;0.50;5.00	0.0;-5.0;90.0	28.00;0.94;0.00	0	0.80	A
			Fila A_4	X	40.00;0.50;5.00	0.0;-5.0;90.0	40.00;0.94;0.00	0	0.80	A
			Fila A_5	X	52.00;0.50;5.00	0.0;-5.0;90.0	52.00;0.94;0.00	0	0.80	A
			Fila A_6	X	64.00;0.50;5.00	0.0;-5.0;90.0	64.00;0.94;0.00	0	0.80	A
			Fila A_7	X	76.00;0.50;5.00	0.0;-5.0;90.0	76.00;0.94;0.00	0	0.80	A
			Fila B_1	X	4.00;12.20;5.00	0.0;-5.0;-90.0	4.00;11.76;0.00	0	0.80	A
			Fila B_2	X	16.00;12.20;5.00	0.0;-5.0;-90.0	16.00;11.76;0.00	0	0.80	A
			Fila B_3	X	28.00;12.20;5.00	0.0;-5.0;-90.0	28.00;11.76;0.00	0	0.80	A
			Fila B_4	X	40.00;12.20;5.00	0.0;-5.0;-90.0	40.00;11.76;0.00	0	0.80	A
			Fila B_5	X	52.00;12.20;5.00	0.0;-5.0;-90.0	52.00;11.76;0.00	0	0.80	A
			Fila B_6	X	64.00;12.20;5.00	0.0;-5.0;-90.0	64.00;11.76;0.00	0	0.80	A
			Fila B_7	X	76.00;12.20;5.00	0.0;-5.0;-90.0	76.00;11.76;0.00	0	0.80	A

4.1 Valori delle Luminanze su: MANTO STRADALE Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:20.81 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	3.16 cd/m ²	2.40 cd/m ²	4.43 cd/m ²	0.76	0.54	0.71

Tipo Calcolo

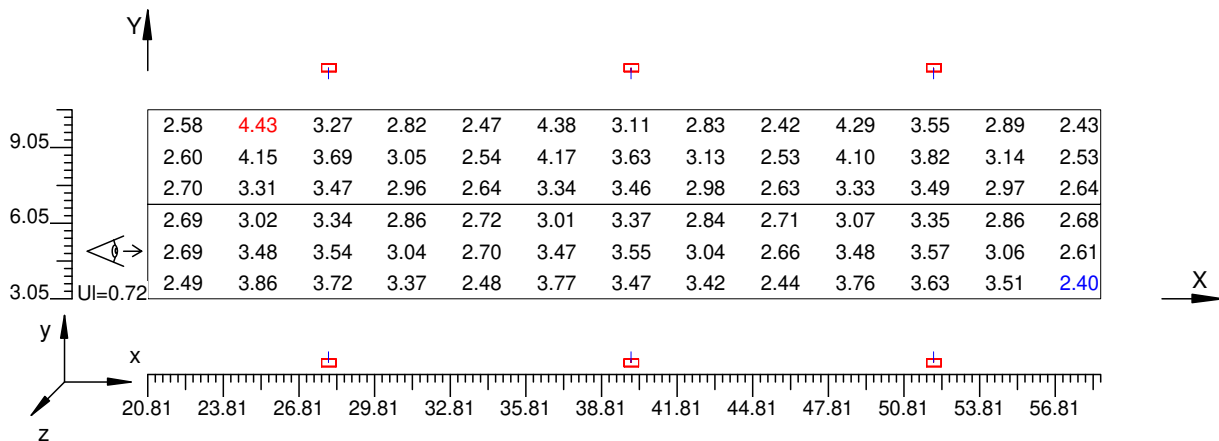
Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.03	0.50	0.72
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.03	---	---

Norma:

CEN 13201

Scala 1/300



4.2 Valori delle Luminanze su: Parete 1 (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=0.00)m

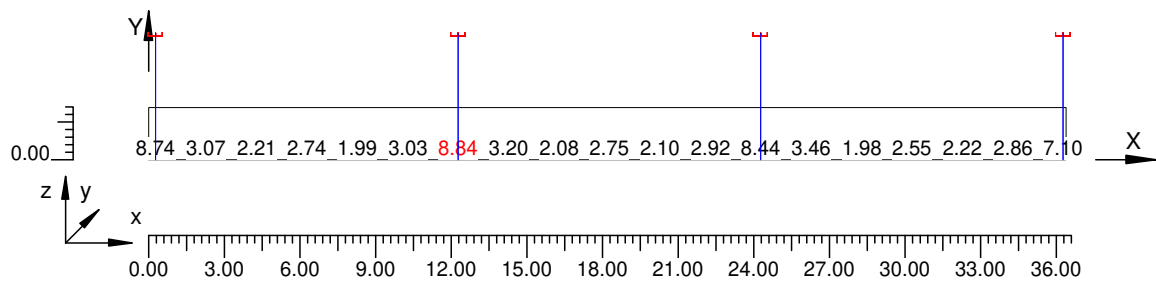
O (x:27.72 y:12.70 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.00 DY:0.92	Luminanza (L)	3.37 cd/m ²	1.56 cd/m ²	8.84 cd/m ²	0.46	0.18	0.38

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/300

Non tutti i punti di calcolo sono visibili



4.3 Valori delle Luminanze su: Parete 2 (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=0.00)m

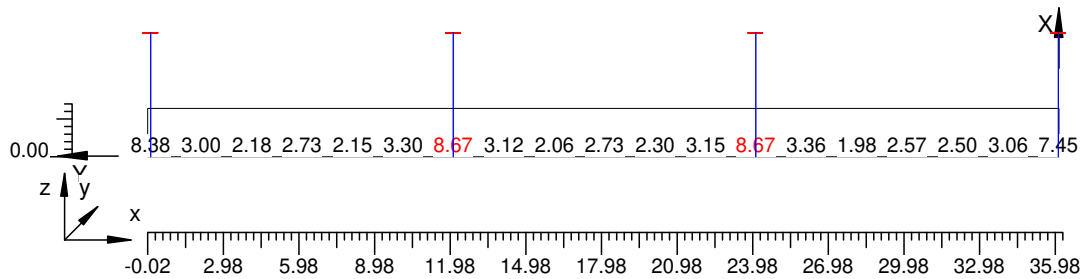
O (x:64.02 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:0.92 DY:1.00	Luminanza (L)	3.46 cd/m ²	1.64 cd/m ²	8.67 cd/m ²	0.47	0.19	0.40

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/300

Non tutti i punti di calcolo sono visibili

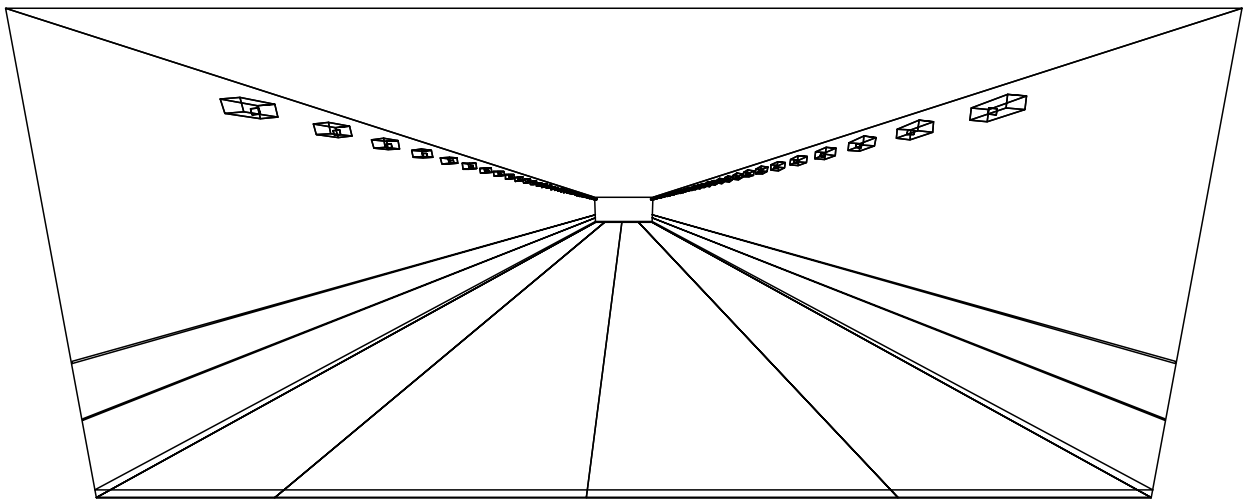


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4.3 Valori delle Luminanze su: Parete 2 (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=0.00)m	10

GALLERIA 80 M. RINFORZO

Note Installazione: ESTRUSO ASIMMETRICO
Cliente: STUDIO MG
Codice Progetto: TU11095
Data: 06/04/2011

Note:



NOME PROGETTISTA:
Indirizzo:
Tel.-Fax:

Avvertenze:

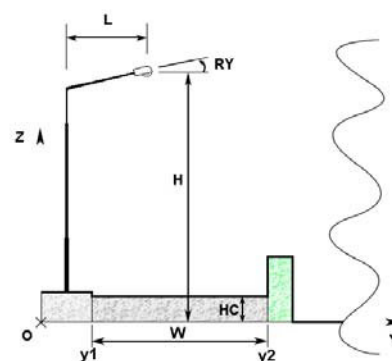
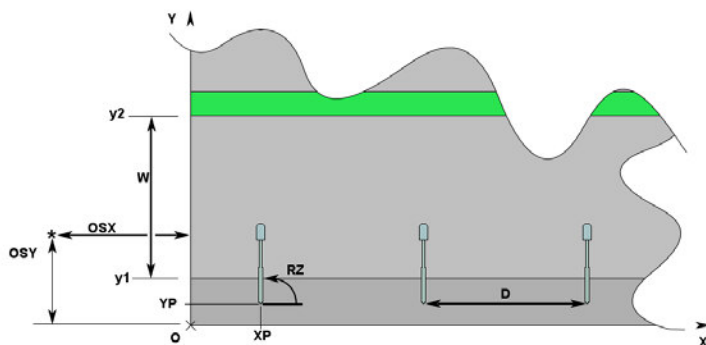
1.1 Informazioni Area

Dati Strada

Zona	Tipo Zona	Corsia	Senso di Marcia	Larghezza [m] W	y1 [m]	y2 [m]	Pt.Calc.Y (ILLUM.)	Pt.Calc.Y (LUMIN.)	h Zona [m] (HC)	Colore	Tabella R	Coeff.Rifl. Fattore q0
Marc_A	Ciclabile/Pedonale	Marc_A_C1	--->	3.05	0.00	3.05	3	3	0.00	RGB=219,54,36		40.00
Carregg_A	Carrabile			7.50	3.05	10.55	5		0.00	RGB=126,126,126	C2	7.01
		Carregg_A_C1	--->	3.75	3.05	6.80		3				
		Carregg_A_C2	<---	3.75	6.80	10.55		3				
Marc_B	Ciclabile/Pedonale	Marc_B_C1	--->	2.15	10.55	12.70	3	3	0.00	RGB=219,54,36		40.00

Dati di installazione (File di Apparecchi)

Nome Fila	1° Palo x [m] (XP)	1° Palo y [m] (YP)	Altez.App. [m] (H)	Num. Pali	Interd. [m] (D)	Sbraccio [m] (L)	Incl.App. ° (RY)	Rot.Sbraccio ° (RZ)	Incl.Laterale ° (RX)	Fatt.Manut. [%]	Codice Apparecchio	Flusso lm	Rifer.
Fila A	2.00	0.50	5.00	45	1.70	0.00	5	180	-5	80.00	ESTRUSO1-AHPST400W55500		A
Fila b	2.00	12.20	5.00	45	1.70	0.00	5	0	-5	80.00	ESTRUSO1-AHPST400W55500		A



1.2 Calcolo Energetico (Suolo)

Area	600.00 m ²
Illuminamento Medio	2713.59 lx
Potenza Specifica	60.00 W/m ²
Potenza Specifica Illuminotecnica	2.21 W/(m ² * 100lx)
Efficienza Energetica	45.23 (m ² *lx)/W
Potenza Totale Utilizzata	36000.00 W

1.3 Parametri di Qualità dell'Impianto

Riepilogo Risultati

Zona	Osservatore	Corsia	Ti	UI	LAv	Uo
Carregg_A			Ti=0.69	0.38	114.52	0.28
	1) (x=-60.00 y=4.92)m	Carregg_A_C1		0.38 *	114.52 *	0.28 *
	2) (x=140.00 y=8.68)m	Carregg_A_C2		0.45	114.73	0.44
	(x=-7.63 y=4.92)m		Ti=0.69 *			
	(x=79.77 y=8.68)m		Ti=0.64			
Lv=0.56						

Norma:

CEN 13201

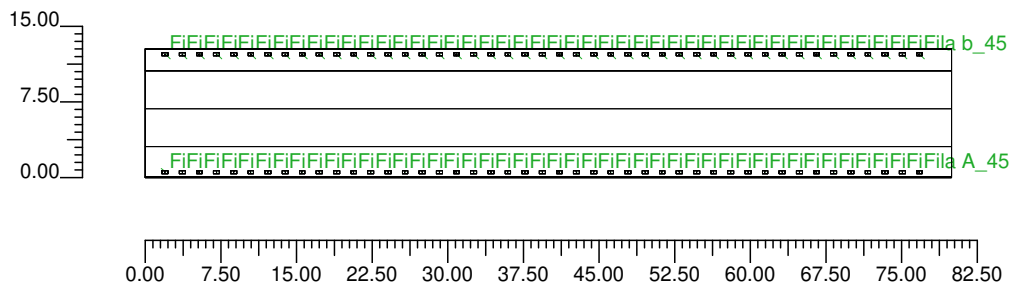
Inquinamento Luminoso

Rapporto Medio - Rn -

0.01 %

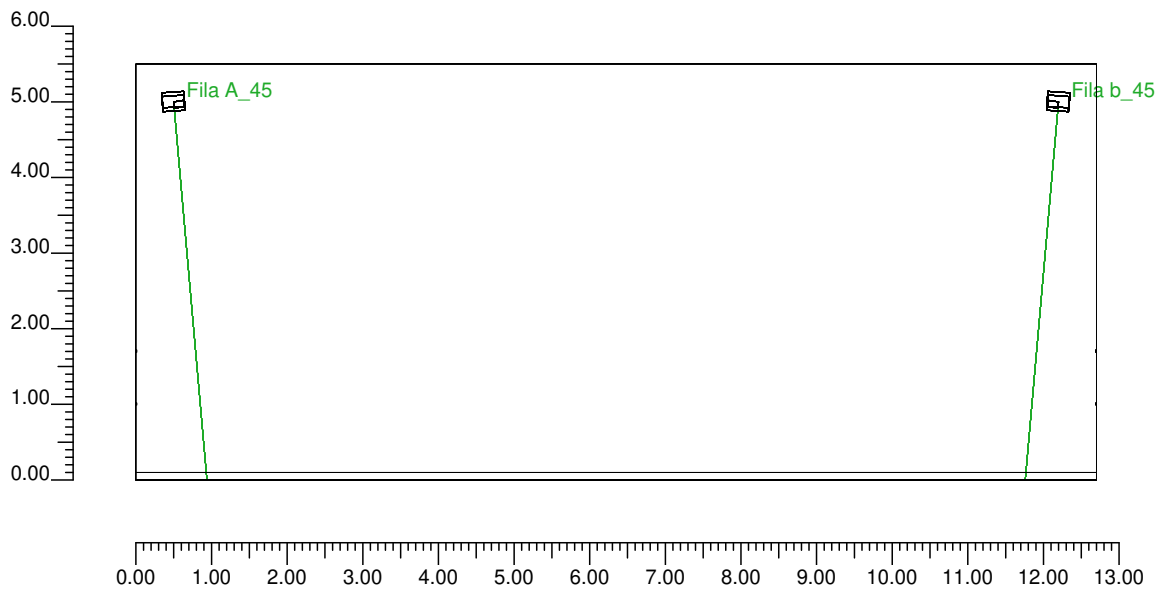
2.1 Vista 2D in Pianta

Scala 1/750



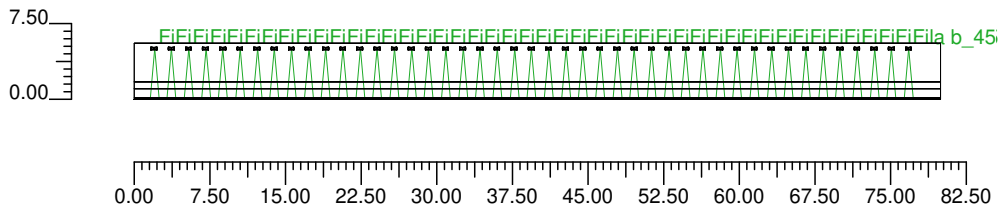
2.2 Vista Laterale

Scala 1/100



2.3 Vista Frontale

Scala 1/750



3.1 Informazioni Apparecchi/Rilievi

Rifer.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice Rilievo)	Apparecchi N.	Rif.Lamp.	Lampade N.
A	GRECHI Estruso	ESTRUSO1 ASIMM. 400W HPST/SAP (ESTRUSO1 400W HPST/SAPT)	ESTRUSO1-AHPST400W (010400ESTRUSO1HPST)	-	LMP-A	1

3.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	N.
LMP-A	ST 400	NAVT400SUPER	55500	400	2000	-

3.3 Tabella Riepilogativa Apparecchi

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	2.00;0.50;5.00	5.0;-5.0;90.0	ESTRUSO1-AHPST400W	0.80	NAVT400SUPER	1*55500
	2	X	3.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	3	X	5.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	4	X	7.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	5	X	8.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	6	X	10.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	7	X	12.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	8	X	13.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	9	X	15.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	10	X	17.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	11	X	19.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	12	X	20.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	13	X	22.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	14	X	24.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	15	X	25.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	16	X	27.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	17	X	29.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	18	X	30.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	19	X	32.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	20	X	34.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	21	X	36.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	22	X	37.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	23	X	39.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	24	X	41.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	25	X	42.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	26	X	44.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	27	X	46.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	28	X	47.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	29	X	49.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	30	X	51.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	31	X	53.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	32	X	54.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	33	X	56.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	34	X	58.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	35	X	59.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	36	X	61.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	37	X	63.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	38	X	64.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	39	X	66.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	40	X	68.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	41	X	70.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	42	X	71.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	43	X	73.40;0.50;5.00	5.0;-5.0;90.0		0.80		

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	44	X	75.10;0.50;5.00	5.0;-5.0;90.0	ESTRUSO1-AHPST400W	0.80	NAVT400SUPER	1*55500
	45	X	76.80;0.50;5.00	5.0;-5.0;90.0				
	46	X	2.00;12.20;5.00	5.0;-5.0;-90.0				
	47	X	3.70;12.20;5.00	5.0;-5.0;-90.0				
	48	X	5.40;12.20;5.00	5.0;-5.0;-90.0				
	49	X	7.10;12.20;5.00	5.0;-5.0;-90.0				
	50	X	8.80;12.20;5.00	5.0;-5.0;-90.0				
	51	X	10.50;12.20;5.00	5.0;-5.0;-90.0				
	52	X	12.20;12.20;5.00	5.0;-5.0;-90.0				
	53	X	13.90;12.20;5.00	5.0;-5.0;-90.0				
	54	X	15.60;12.20;5.00	5.0;-5.0;-90.0				
	55	X	17.30;12.20;5.00	5.0;-5.0;-90.0				
	56	X	19.00;12.20;5.00	5.0;-5.0;-90.0				
	57	X	20.70;12.20;5.00	5.0;-5.0;-90.0				
	58	X	22.40;12.20;5.00	5.0;-5.0;-90.0				
	59	X	24.10;12.20;5.00	5.0;-5.0;-90.0				
	60	X	25.80;12.20;5.00	5.0;-5.0;-90.0				
	61	X	27.50;12.20;5.00	5.0;-5.0;-90.0				
	62	X	29.20;12.20;5.00	5.0;-5.0;-90.0				
	63	X	30.90;12.20;5.00	5.0;-5.0;-90.0				
	64	X	32.60;12.20;5.00	5.0;-5.0;-90.0				
	65	X	34.30;12.20;5.00	5.0;-5.0;-90.0				
	66	X	36.00;12.20;5.00	5.0;-5.0;-90.0				
	67	X	37.70;12.20;5.00	5.0;-5.0;-90.0				
	68	X	39.40;12.20;5.00	5.0;-5.0;-90.0				
	69	X	41.10;12.20;5.00	5.0;-5.0;-90.0				
	70	X	42.80;12.20;5.00	5.0;-5.0;-90.0				
	71	X	44.50;12.20;5.00	5.0;-5.0;-90.0				
	72	X	46.20;12.20;5.00	5.0;-5.0;-90.0				
	73	X	47.90;12.20;5.00	5.0;-5.0;-90.0				
	74	X	49.60;12.20;5.00	5.0;-5.0;-90.0				
	75	X	51.30;12.20;5.00	5.0;-5.0;-90.0				
	76	X	53.00;12.20;5.00	5.0;-5.0;-90.0				
	77	X	54.70;12.20;5.00	5.0;-5.0;-90.0				
	78	X	56.40;12.20;5.00	5.0;-5.0;-90.0				
	79	X	58.10;12.20;5.00	5.0;-5.0;-90.0				
	80	X	59.80;12.20;5.00	5.0;-5.0;-90.0				
	81	X	61.50;12.20;5.00	5.0;-5.0;-90.0				
	82	X	63.20;12.20;5.00	5.0;-5.0;-90.0				
	83	X	64.90;12.20;5.00	5.0;-5.0;-90.0				
	84	X	66.60;12.20;5.00	5.0;-5.0;-90.0				
	85	X	68.30;12.20;5.00	5.0;-5.0;-90.0				
	86	X	70.00;12.20;5.00	5.0;-5.0;-90.0				
	87	X	71.70;12.20;5.00	5.0;-5.0;-90.0				
	88	X	73.40;12.20;5.00	5.0;-5.0;-90.0				
	89	X	75.10;12.20;5.00	5.0;-5.0;-90.0				
	90	X	76.80;12.20;5.00	5.0;-5.0;-90.0				

3.4 Tabella Riepilogativa Puntamenti

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila A_1	X	2.00;0.50;5.00	5.0;-5.0;90.0	1.56;0.94;0.00	-45	0.80	A
			Fila A_2	X	3.70;0.50;5.00	5.0;-5.0;90.0	3.26;0.94;0.00	-45	0.80	A
			Fila A_3	X	5.40;0.50;5.00	5.0;-5.0;90.0	4.96;0.94;0.00	-45	0.80	A
			Fila A_4	X	7.10;0.50;5.00	5.0;-5.0;90.0	6.66;0.94;0.00	-45	0.80	A
			Fila A_5	X	8.80;0.50;5.00	5.0;-5.0;90.0	8.36;0.94;0.00	-45	0.80	A
			Fila A_6	X	10.50;0.50;5.00	5.0;-5.0;90.0	10.06;0.94;0.00	-45	0.80	A
			Fila A_7	X	12.20;0.50;5.00	5.0;-5.0;90.0	11.76;0.94;0.00	-45	0.80	A
			Fila A_8	X	13.90;0.50;5.00	5.0;-5.0;90.0	13.46;0.94;0.00	-45	0.80	A
			Fila A_9	X	15.60;0.50;5.00	5.0;-5.0;90.0	15.16;0.94;0.00	-45	0.80	A
			Fila A_10	X	17.30;0.50;5.00	5.0;-5.0;90.0	16.86;0.94;0.00	-45	0.80	A
			Fila A_11	X	19.00;0.50;5.00	5.0;-5.0;90.0	18.56;0.94;0.00	-45	0.80	A
			Fila A_12	X	20.70;0.50;5.00	5.0;-5.0;90.0	20.26;0.94;0.00	-45	0.80	A
			Fila A_13	X	22.40;0.50;5.00	5.0;-5.0;90.0	21.96;0.94;0.00	-45	0.80	A
			Fila A_14	X	24.10;0.50;5.00	5.0;-5.0;90.0	23.66;0.94;0.00	-45	0.80	A

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi			Rotazione Apparecchi			Puntamenti			R.Asse °	Coeff. Mant.	Rifer.
					X[m]	Y[m]	Z[m]	X°	Y°	Z°	X[m]	Y[m]	Z[m]			
			Fila A_15	X	25.80	0.50	5.00	5.0	-5.0	90.0	25.36	0.94	0.00	-45	0.80	A
			Fila A_16	X	27.50	0.50	5.00	5.0	-5.0	90.0	27.06	0.94	0.00	-45	0.80	A
			Fila A_17	X	29.20	0.50	5.00	5.0	-5.0	90.0	28.76	0.94	0.00	-45	0.80	A
			Fila A_18	X	30.90	0.50	5.00	5.0	-5.0	90.0	30.46	0.94	0.00	-45	0.80	A
			Fila A_19	X	32.60	0.50	5.00	5.0	-5.0	90.0	32.16	0.94	0.00	-45	0.80	A
			Fila A_20	X	34.30	0.50	5.00	5.0	-5.0	90.0	33.86	0.94	0.00	-45	0.80	A
			Fila A_21	X	36.00	0.50	5.00	5.0	-5.0	90.0	35.56	0.94	0.00	-45	0.80	A
			Fila A_22	X	37.70	0.50	5.00	5.0	-5.0	90.0	37.26	0.94	0.00	-45	0.80	A
			Fila A_23	X	39.40	0.50	5.00	5.0	-5.0	90.0	38.96	0.94	0.00	-45	0.80	A
			Fila A_24	X	41.10	0.50	5.00	5.0	-5.0	90.0	40.66	0.94	0.00	-45	0.80	A
			Fila A_25	X	42.80	0.50	5.00	5.0	-5.0	90.0	42.36	0.94	0.00	-45	0.80	A
			Fila A_26	X	44.50	0.50	5.00	5.0	-5.0	90.0	44.06	0.94	0.00	-45	0.80	A
			Fila A_27	X	46.20	0.50	5.00	5.0	-5.0	90.0	45.76	0.94	0.00	-45	0.80	A
			Fila A_28	X	47.90	0.50	5.00	5.0	-5.0	90.0	47.46	0.94	0.00	-45	0.80	A
			Fila A_29	X	49.60	0.50	5.00	5.0	-5.0	90.0	49.16	0.94	0.00	-45	0.80	A
			Fila A_30	X	51.30	0.50	5.00	5.0	-5.0	90.0	50.86	0.94	0.00	-45	0.80	A
			Fila A_31	X	53.00	0.50	5.00	5.0	-5.0	90.0	52.56	0.94	0.00	-45	0.80	A
			Fila A_32	X	54.70	0.50	5.00	5.0	-5.0	90.0	54.26	0.94	0.00	-45	0.80	A
			Fila A_33	X	56.40	0.50	5.00	5.0	-5.0	90.0	55.96	0.94	0.00	-45	0.80	A
			Fila A_34	X	58.10	0.50	5.00	5.0	-5.0	90.0	57.66	0.94	0.00	-45	0.80	A
			Fila A_35	X	59.80	0.50	5.00	5.0	-5.0	90.0	59.36	0.94	0.00	-45	0.80	A
			Fila A_36	X	61.50	0.50	5.00	5.0	-5.0	90.0	61.06	0.94	0.00	-45	0.80	A
			Fila A_37	X	63.20	0.50	5.00	5.0	-5.0	90.0	62.76	0.94	0.00	-45	0.80	A
			Fila A_38	X	64.90	0.50	5.00	5.0	-5.0	90.0	64.46	0.94	0.00	-45	0.80	A
			Fila A_39	X	66.60	0.50	5.00	5.0	-5.0	90.0	66.16	0.94	0.00	-45	0.80	A
			Fila A_40	X	68.30	0.50	5.00	5.0	-5.0	90.0	67.86	0.94	0.00	-45	0.80	A
			Fila A_41	X	70.00	0.50	5.00	5.0	-5.0	90.0	69.56	0.94	0.00	-45	0.80	A
			Fila A_42	X	71.70	0.50	5.00	5.0	-5.0	90.0	71.26	0.94	0.00	-45	0.80	A
			Fila A_43	X	73.40	0.50	5.00	5.0	-5.0	90.0	72.96	0.94	0.00	-45	0.80	A
			Fila A_44	X	75.10	0.50	5.00	5.0	-5.0	90.0	74.66	0.94	0.00	-45	0.80	A
			Fila A_45	X	76.80	0.50	5.00	5.0	-5.0	90.0	76.36	0.94	0.00	-45	0.80	A
			Fila b_1	X	2.00	12.20	5.00	5.0	-5.0	-90.0	2.44	11.76	0.00	-45	0.80	A
			Fila b_2	X	3.70	12.20	5.00	5.0	-5.0	-90.0	4.14	11.76	0.00	-45	0.80	A
			Fila b_3	X	5.40	12.20	5.00	5.0	-5.0	-90.0	5.84	11.76	0.00	-45	0.80	A
			Fila b_4	X	7.10	12.20	5.00	5.0	-5.0	-90.0	7.54	11.76	0.00	-45	0.80	A
			Fila b_5	X	8.80	12.20	5.00	5.0	-5.0	-90.0	9.24	11.76	0.00	-45	0.80	A
			Fila b_6	X	10.50	12.20	5.00	5.0	-5.0	-90.0	10.94	11.76	0.00	-45	0.80	A
			Fila b_7	X	12.20	12.20	5.00	5.0	-5.0	-90.0	12.64	11.76	0.00	-45	0.80	A
			Fila b_8	X	13.90	12.20	5.00	5.0	-5.0	-90.0	14.34	11.76	0.00	-45	0.80	A
			Fila b_9	X	15.60	12.20	5.00	5.0	-5.0	-90.0	16.04	11.76	0.00	-45	0.80	A
			Fila b_10	X	17.30	12.20	5.00	5.0	-5.0	-90.0	17.74	11.76	0.00	-45	0.80	A
			Fila b_11	X	19.00	12.20	5.00	5.0	-5.0	-90.0	19.44	11.76	0.00	-45	0.80	A
			Fila b_12	X	20.70	12.20	5.00	5.0	-5.0	-90.0	21.14	11.76	0.00	-45	0.80	A
			Fila b_13	X	22.40	12.20	5.00	5.0	-5.0	-90.0	22.84	11.76	0.00	-45	0.80	A
			Fila b_14	X	24.10	12.20	5.00	5.0	-5.0	-90.0	24.54	11.76	0.00	-45	0.80	A
			Fila b_15	X	25.80	12.20	5.00	5.0	-5.0	-90.0	26.24	11.76	0.00	-45	0.80	A
			Fila b_16	X	27.50	12.20	5.00	5.0	-5.0	-90.0	27.94	11.76	0.00	-45	0.80	A
			Fila b_17	X	29.20	12.20	5.00	5.0	-5.0	-90.0	29.64	11.76	0.00	-45	0.80	A
			Fila b_18	X	30.90	12.20	5.00	5.0	-5.0	-90.0	31.34	11.76	0.00	-45	0.80	A
			Fila b_19	X	32.60	12.20	5.00	5.0	-5.0	-90.0	33.04	11.76	0.00	-45	0.80	A
			Fila b_20	X	34.30	12.20	5.00	5.0	-5.0	-90.0	34.74	11.76	0.00	-45	0.80	A
			Fila b_21	X	36.00	12.20	5.00	5.0	-5.0	-90.0	36.44	11.76	0.00	-45	0.80	A
			Fila b_22	X	37.70	12.20	5.00	5.0	-5.0	-90.0	38.14	11.76	0.00	-45	0.80	A
			Fila b_23	X	39.40	12.20	5.00	5.0	-5.0	-90.0	39.84	11.76	0.00	-45	0.80	A
			Fila b_24	X	41.10	12.20	5.00	5.0	-5.0	-90.0	41.54	11.76	0.00	-45	0.80	A
			Fila b_25	X	42.80	12.20	5.00	5.0	-5.0	-90.0	43.24	11.76	0.00	-45	0.80	A
			Fila b_26	X	44.50	12.20	5.00	5.0	-5.0	-90.0	44.94	11.76	0.00	-45	0.80	A
			Fila b_27	X	46.20	12.20	5.00	5.0	-5.0	-90.0	46.64	11.76	0.00	-45	0.80	A
			Fila b_28	X	47.90	12.20	5.00	5.0	-5.0	-90.0	48.34	11.76	0.00	-45	0.80	A
			Fila b_29	X	49.60	12.20	5.00	5.0	-5.0	-90.0	50.04	11.76	0.00	-45	0.80	A
			Fila b_30	X	51.30	12.20	5.00	5.0	-5.0	-90.0	51.74	11.76	0.00	-45	0.80	A
			Fila b_31	X	53.00	12.20	5.00	5.0	-5.0	-90.0	53.44	11.76	0.00	-45	0.80	A
			Fila b_32	X	54.70	12.20	5.00	5.0	-5.0	-90.0	55.14	11.76	0.00	-45	0.80	A
			Fila b_33	X	56.40	12.20	5.00	5.0	-5.0	-90.0	56.84	11.76	0.00	-45	0.80	A
			Fila b_34	X	58.10	12.20	5.00	5.0	-5.0	-90.0	58.54	11.76	0.00	-45	0.80	A
			Fila b_35	X	59.80	12.20	5.00	5.0	-5.0	-90.0	60.24	11.76	0.00	-45	0.80	A
			Fila b_36	X	61.50	12.20	5.00	5.0	-5.0	-90.0	61.94	11.76	0.00	-45	0.80	A
			Fila b_37	X	63.20	12.20	5.00	5.0	-5.0	-90.0	63.64	11.76	0.00	-45	0.80	A
			Fila b_38	X	64.90	12.20	5.00	5.0	-5.0	-90.0	65.34	11.76	0.00	-45	0.80	A
			Fila b_39	X	66.60	12.20	5.00	5.0	-5.0	-90.0	67.04	11.76	0.00	-45	0.80	A
			Fila b_40	X	68.30	12.20	5.00	5.0	-5.0	-90.0	68.74	11.76	0.00	-45	0.80	A

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila b_41	X	70.00;12.20;5.00	5.0;-5.0;-90.0	70.44;11.76;0.00	-45	0.80	A
			Fila b_42	X	71.70;12.20;5.00	5.0;-5.0;-90.0	72.14;11.76;0.00	-45	0.80	A
			Fila b_43	X	73.40;12.20;5.00	5.0;-5.0;-90.0	73.84;11.76;0.00	-45	0.80	A
			Fila b_44	X	75.10;12.20;5.00	5.0;-5.0;-90.0	75.54;11.76;0.00	-45	0.80	A
			Fila b_45	X	76.80;12.20;5.00	5.0;-5.0;-90.0	77.24;11.76;0.00	-45	0.80	A

4.1 Curva Luminanza Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:0.00 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	115 cd/m ²	32 cd/m ²	132 cd/m ²	0.28	0.24	0.87

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.56	0.69	0.38 *
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.56	---	---

Norma:

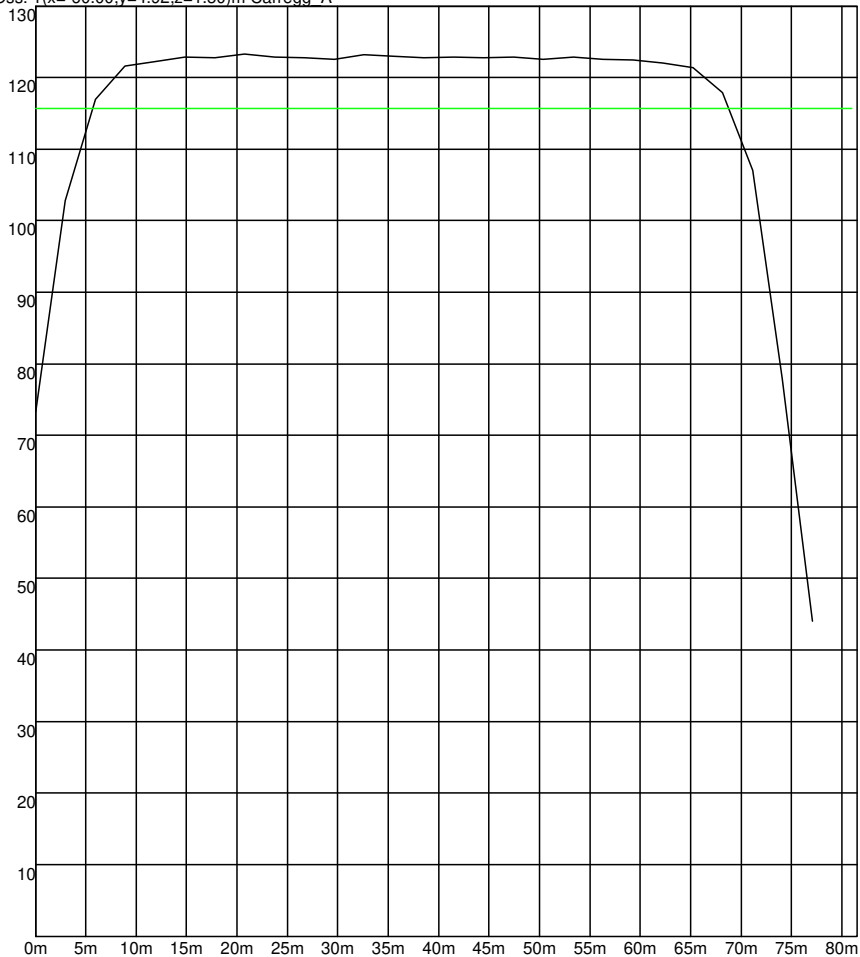
CEN 13201

Zona: Carregg_A
 Luminanza Media 113.054 cd/m² (Carregg_A_C2 Obs1)
 Uniformita' Generale 0.283 (Carregg_A_C2 Obs1)
 Uniformita' Longitudinale 0.323 (Carregg_A_C2 Obs1)

Par. 1 Luminanza Media 102.498 cd/m² (1m e 1,7m)
 Par. 1 Illum. Medio 715.568lx (1m e 1,7m)
 Par. 1 Uniformita' Generale 0.204 (1m e 1,7m)
 Par. 1 Uniformita' Longitudinale 0.182 (a 1,7m)

Par. 2 Luminanza Media 98.080 cd/m² (1m e 1,7m)
 Par. 2 Illum. Medio 684.728lx (1m e 1,7m)
 Par. 2 Uniformita' Generale 0.183 (1m e 1,7m)
 Par. 2 Uniformita' Longitudinale 0.164 (a 1,7m)

Luminanza Oss. 1(x=-60.00;y=4.92;z=1.50)m Carregg_A



4.2 Valori delle Luminanze su: MANTO STRADALE DA 0 A 80 M. Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:12.30 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	123 cd/m ²	108 cd/m ²	132 cd/m ²	0.88	0.82	0.93

Tipo Calcolo

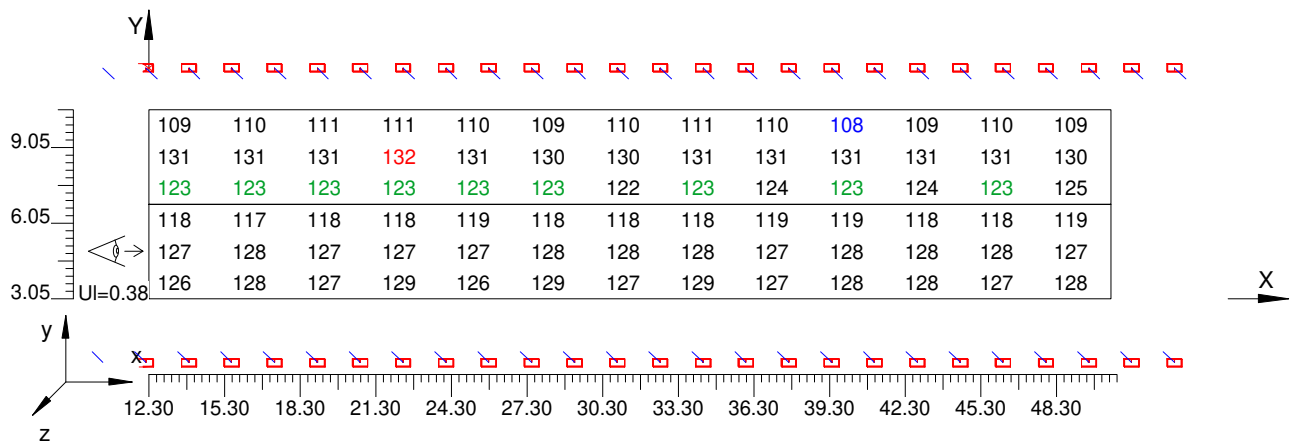
Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.56	0.69	0.38 *
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.56	---	---

Norma:

CEN 13201

Scala 1/300



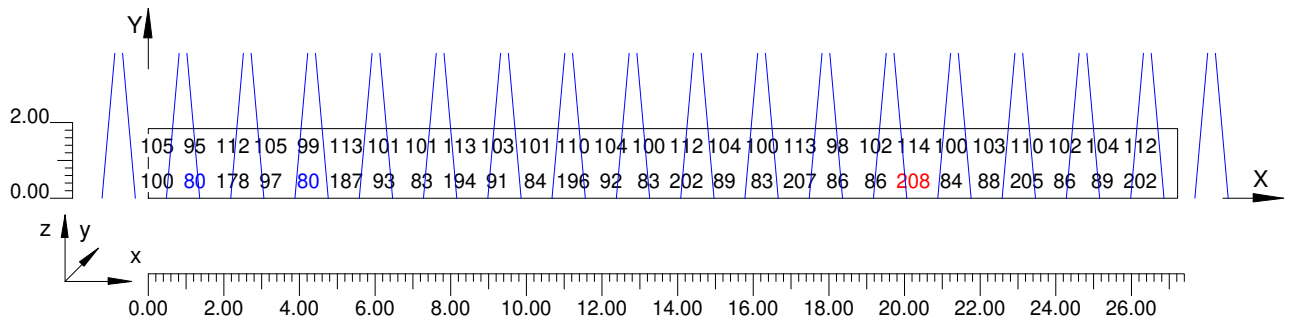
4.3 Valori delle Luminanze su: Parete 1 DA 0 A 80 M. (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=1.50)m

O (x:19.76 y:12.70 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.00 DY:0.92	Luminanza (L)	115 cd/m ²	80 cd/m ²	208 cd/m ²	0.69	0.38	0.55

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/200



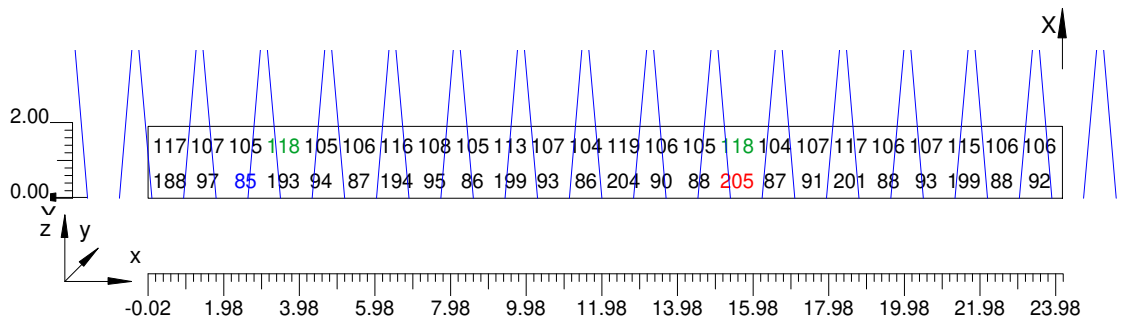
4.4 Valori delle Luminanze su: Parete 2 DA 0 A 80 M. (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=1.50)m

O (x:48.60 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:0.92 DY:1.00	Luminanza (L)	118 cd/m ²	85 cd/m ²	205 cd/m ²	0.72	0.42	0.58

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/200



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